HEMATITE FUEL FABRICATION FACILITY
BUILDING 101
(Tile Barn)
3300 State Road P
Festus
Jefferson County
Missouri

HAER No. MO-113-A

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD
Midwest Regional Office
National Park Service
601 Riverfront Drive
Omaha, Nebraska 68102

HISTORIC AMERICAN ENGINEERING RECORD

HEMATITE FUEL FABRICATION FACILITY
BUILDING 101
(Tile Barn)

HAER No. MO-113-A

Location: 3300 State Road P
Festus, Jefferson County, Missouri

Present Owner: Westinghouse Electric Company Limited Liability Corporation (LLC)

Present Use: Contaminated equipment storage.

Significance: The Hematite Fuel Fabrication Facility, also known as Hematite Former Fuel Cycle Facility and the Westinghouse Electric Company Hematite Facility, was constructed over a period of thirty-one years. The Facility was the first privately owned and operated uranium fuel production plant in the United States. The plant produced nuclear fuel for military as well as peacetime purposes throughout the "Cold War" era.

The Hematite Fuel Fabrication Facility produced high-enriched nuclear fuel for the U.S. Navy nuclear submarine program and other reactor programs during the "Cold War" years of 1956 to 1974. After 1974 the Facility produced only commercial grade low enriched uranium for commercial nuclear power facilities.

PART I. HISTORICAL INFORMATION

A. Physical History

1. **Date of Construction:** Circa 1940s

2. **Architect:** The architect for this building is unknown.

3. **Owners, Occupants and Uses:** Owners include: Mallinckrodt Chemical Works, United Nuclear Corporation, Gulf United Nuclear Fuels Corporation, Combustion Engineering Corporation, Asa Brown Boveri, and Westinghouse Electric Company, LLC. Building 101 has been used for equipment storage and an emergency center.

4. **Builder-Contractor:** The contractor is unknown.

5. **Original Plans and Construction:** The location of any original plans is unknown.

6. **Alterations and Additions:** The interior of the barn was altered to create an emergency center for the Facility.

B. Historical Context

The structure, although currently a part of the Hematite Complex, was originally a dairy barn and was one of several structures that was part of a dairy farm that operated on the property prior to the purchase of the land by Mallinckrodt Chemical Works. This building measures 125'8" x 34'6" on the first level and 125'8" x 34'6" on the second level. When Mallinckrodt Chemical Works purchased the land in order to build the uranium production plant, the Tile Barn was spared demolition and incorporated into the facility complex. The east side of the structure has always been maintained as the Emergency Operations Center, and a radiological contaminated area which served as an assembly point for "process workers" if required to evacuate without conducting radiological surveillance. The rest of the barn has been used to store both clean and contaminated equipment.

PART II. ARCHITECTURAL INFORMATION

A. General Statement

1. **Architectural character:** Building 101 conforms to the typical "Twentieth Century Dairy Barn" architectural style.

2. **Condition of fabric:** The tile barn is in excellent condition.

B. Description of Exterior

1. **Overall dimensions:** Building 101 measures 125'-8" x 34'-6" on the first floor and 125'-8" x 34'-6" on the second floor. Building 101 measures 4,410 square feet on the first floor and 4,410 square feet on the second floor, for a total of 8,820 square feet.

2. **Foundation:** Concrete

3. **Walls:** Tile and wood siding

4. **Structural system, framing:** Wood framing

5. **Porches:** There are no porches.

6. **Chimneys:** There are no chimneys.

7. **Openings:**

   a. **Doorways and Doors:** There are seven exterior doors, three on the east, three on the west, and one on the south in the center. There are four loft doors, two on the east and two on the west side of the barn. The loft doors are stacked, the smaller doors sit directly under the larger doors.

   b. **Windows:** There are twenty, symmetrically spaced, windows in the barn. Eight on the north side, eight on the

south side, two on the east, and two on the west (all are on the lower level).

8. **Roof:**

   a. **Shape, covering:** The Tile Barn has a gambrel roof (all common rafter system) and is covered with metal sheets.

   b. **Cornice, eaves:** There are no cornices or eaves.

   c. **Dormers, cupolas, towers:** There are six shed dormers, three on the north side and three on the south side. There are three metal roof ventilators.

C. **Description of Interior**

1. **Floor plans:** The Tile Barn was altered to create an emergency center that is equipped to handle accidents involving radioactive contamination. The first floor of the barn has been sectioned into to two rooms running length; there is a total of three rooms in the Tile Barn, two on the lower level and one on the second level

2. **Stairways:** There is one stairway from the first level to the second level.

3. **Flooring:** The first level flooring is concrete, the second level floor is constructed from wood planks.

4. **Wall and ceiling finish:** The first floor, interior walls are painted concrete block, it is unknown whether the blocks are original construction or were added after the barn became part of the Facility. The ceiling is a drop ceiling with recessed fluorescent lighting. The second floor of the barn remains open with the rafters and beams exposed.

5. **Openings:** There are no interior doors.

6. **Decorative features:** There are no decorative features.

7. **Hardware:** The hinges on the barn doors are original but the rest of the hardware is modern.

8. **Mechanical equipment:**

   a. **Heating, air conditioning, ventilation:** The air conditioning and heating are forced air, the heat is gas.

   b. **Lighting:** Fluorescent

   c. **Plumbing:** There is no plumbing.

D. Site

1. **General setting and orientation:** The Tile Barn sits approximately 50' south of State Road P. There is a creek to the west, Building 120 is directly to the east and building 230 is south. The Tile Barn is the farthest building located in the northwest corner of the facility.

2. **Historic landscape design:** Vernacular landscape.

PART III. SOURCES OF INFORMATION

A. Architectural drawings: Original drawings for this building were not located.

B. Bibliography:

McAlester, Virginia, and Lee McAlester. *A Field Guide to American Houses.* New York: Alfred A. Knopf, 2000.

Malich, Phillip J. *034-JE-02 Proposed Hematite Former Fuel Processing Facility.* Missouri Department of Natural Resources, State Historic Preservation Office, Jefferson City, Missouri, 2002.

Noble, Allen G., and Richard K. Cleek. *The Old Barn Book: A Field Guide to North American Barns and Other Structures.* New Brunswick: Rutgers University Press, 1995.

PART IV. PROJECT INFORMATION

This Historic American Engineering Record (HAER) documentation project was undertaken due to the owner's desire to decommission the Facility. The Facility will be disassembled (this is being done for safety purposes and the work is being done in accordance with federal law and regulations regarding hazardous waste clean-up and disposal). In 2003, Westinghouse Electric Company, LLC, hired SCI Engineering, Inc., of St. Charles, Missouri, to complete the HAER documentation of the Hematite Fuel Fabrication Facility. Dr. Steve Dasovich supervised the project and Historian Colleen Small-Vollman authored the HAER documentation report. The report was compiled by Susan Sheppard. Bruce Meyer and Todd Kapler completed the photographic documentation of the Facility, and Asa Westphal completed the floor plan drawings.